

In The Claims

1. (Currently Amended) A display device comprising a liquid container having a transparent wall portion and containing two immiscible liquids having different visual characteristics and at least one of different specific gravities and different viscosities and, a means responsive to significant changes in at least one sound parameter in the vicinity of the display device for injecting one liquid into another the other liquid at rates related to said significant changes to provide a visual display for viewing through the wall portion, which the visual display reacts reacting to at least one of music and voices.
2. (Original) A display device according to claim 1 wherein said significant changes are in at least one of volume and frequency.
3. (Original) A display device according to claim 1 wherein said means injects one liquid into the other for dispersion and suspension therein as one or more distinct globules at sizes determined by deviations from ambient sound levels.
4. (Currently amended) A display device according to claim 1 wherein said means comprises a pump for injecting one of the liquids upwards as a spout from a bottom of the container into another the other of the liquids, said one liquid being of greater specific gravity than said another other liquid, so that said one liquid disperses from the spout falls through said another other liquid after injection therein.
5. (Currently amended) A display device according to claim 1 wherein the one an injected liquid has greater opacity than a the other liquid into which it is injected.

6. (Currently amended) A display device according to claim 4 further comprising a lamp arranged to shine upwards into the container to illuminate the visual display and a means for changing a level of illumination provided by the lamp in response to said significant changes in said at least one sound parameter in the vicinity of the device.

7. (Currently amended) A display device according to claim 4 further comprising a lamp arranged to illuminate the visual display and a means for changing a level of illumination provided by the lamp in response to said significant changes in said at least one sound parameter.

8. (Currently amended) A display device according to claim 4 7 wherein the means for changing the level of illumination provided by the lamp comprises a means to increase power supplied to the lamp to increase illumination in response to a significant change in said at least one sound parameter and to progressively reduce power supplied to the lamp to dim the lamp at a rate related to a time taken for the denser one liquid to fall back through the other, less dense liquid to a bottom of the container.

9. (Original) A display device according to claim 8 wherein the power increasing and reducing means comprises a voltage controlled dimmer circuit connected to supply power to the lamp and a capacitor providing control voltage for the dimmer circuit and arranged to discharge through a resistor with a time constant similar to a time taken for the denser liquid to fall back through the less dense liquid to a bottom of the container.

10. (Currently amended) A display device according to claim 1 wherein said means comprises:

    a microphone;

    an amplifier connected to the microphone to amplify a signal received therefrom;

a filter connected to the amplifier for extracting from ~~an~~ the amplified signal, a signal component representing one of a beat from dance music and syllabic content of speech;

an amplitude envelope detector connected to the filter for detecting a short-time amplitude envelope of a the signal component from the filter;

a long time averager and an attenuator both connected to the amplitude detector envelope for simultaneously receiving the envelope, the long-time averager creating a DC reference signal proportional to an average sound level;

a comparator connected to both the long time averager and to the attenuator for comparing the DC reference signal with an attenuated version of the short-time amplitude envelope from the attenuator;

an electric pump power controller for connection between the comparator and a power source; and,

an electric pump for connection to the power source by the electric pump power controller,

the comparator changing state when the attenuated version of the short time amplitude envelope momentarily rises above the DC reference signal proportional to the average sound level, to provide an activating signal to the pump power controller causing electric power to be delivered to the pump.

11. (Currently amended) A display device according to claim 1 wherein said means comprises:

a microphone;

an amplifier connected to the microphone to amplify a signal received therefrom;

a filter connected to the amplifier for extracting from an amplified signal, a signal component representing one of a beat from dance music and syllabic content of speech;

an amplitude envelope detector connected to the filter for detecting a short-time amplitude envelope of a the signal component from the filter;

a differentiator circuit connected to an output of the amplitude envelope detector to output rapidly changing signals detected by the amplitude envelope detector;

means providing a constant reference DC voltage ;

a comparator connected to both the differentiator output and the DC reference voltage;

an electric pump power controller for connection between the comparator and a power source; and,

an electric pump for connection to the power source by the electric pump power controller,

the comparator changing state when the value of the differentiator output rises above the DC reference voltage, to provide an activating signal to the pump power controller causing electric power to be delivered to the pump.

12. (Currently amended) A display device according to claim 11 wherein the filter is one of a 200Hz low-pass filter to extract the signal component representing beat from dance music and a 100-900Hz bandpass filter to extract the the signal component representing the syllabic content of speech.

13. (Original) A display device according to claim 11 further comprising a lamp arranged to illuminate the display and connected to the power source via the power controller so that the change in state of the comparator causes power to be delivered to the lamp to increase the illumination thereof.

14. (Currently amended) A display device according to claim 1 wherein said means responsive to significant changes in at least one sound parameter in the vicinity of the display device for injecting one liquid into the other liquid injection means comprises an electric pump comprising a first sub-assembly and a second sub-assembly, mounted outside and inside the container, respectively, the first sub assembly comprising an electric motor with a drive shaft and a cylindrical drive magnet with one axial end mounted thereon and the second sub-assembly comprising an impeller housing with a liquid inlet and a liquid outlet, a cylindrical

driven magnet, and an impeller with one axial end mounted on the driven magnet, the container being integrally molded with an outwardly protruding, cylindrical magnet housing portion with a blind, outer end; the drive magnet and the driven magnet being mounted for rotation in coaxial relation surrounding and within the cylindrical housing portion, respectively, so that the drive magnet and driven magnet are magnetically coupled together, whereby the impeller is rotated by the electric motor.

15. (Original) A display device according to claim 14 wherein a spindle is mounted coaxially in the cylindrical housing portion housing with upper and lower axial ends of the spindle supported by the impeller housing and the blind end, respectively, and the impeller is mounted for rotation on the spindle.

16. (Original) A display device according to claim 4 wherein said one liquid is a mixture comprising propylene glycol, glycerin and water and said another liquid consists essentially of a paraffin oil.

17. (Original) A display device according to claim 16 wherein said paraffin oil is 98% paraffin.

18. (Original) A display device according to claim 4 wherein said one liquid consists essentially of chlorinated paraffin and said another liquid consists essentially of distilled water.

19. (Currently amended) A method of providing a liquid display comprising the a step of co-mingling immiscible liquids of different appearances at rates determined by changes in ambient sound parameters in an audio range to provide a display which reacts to at least one of music and voices.

20. (Currently amended) A method according to claim 19 wherein one of the liquids liquid is of greater specific gravity than another of the liquids and the liquids are co-mingled by injecting said one liquid from below upwardly into said another

liquid so that said one liquid falls through said another liquid subsequent to injection so that the display is a geyser.